

NEW SPECIES AND RECORDS OF *PLAKOLANA* BRUCE (CRUSTACEA: ISOPODA: CIROLANIDAE) FROM AUSTRALIA

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Two new species of *Plakolana* are described from the continental shelf of the northern and central east coast of Australia. A revised key to the species of the genus and new records of the two other Australian species are also provided. □ *Isopoda*, *Cirolanidae*, *Plakolana*, *Australia*.

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Many species of cirolanid isopods in various genera are known to feed as scavengers on the flesh of dead or dying vertebrates (for examples see Stepien & Brusca, 1985; Bruce, 1986; Wong & Moore, 1996). These isopods may play an important role in ecosystems through the decomposition of carcasses and the associated redistribution of available energy and nutrients (Keable, 1995). They may also be significant pests of commercial fisheries (Sekiguchi, 1982; Stepien & Brusca, 1985; Berrow, 1994; Mizzan, 1995).

Cirolanid isopods in the genus *Plakolana* Bruce, 1993 are well documented scavengers which are readily collected in baited traps (Bruce, 1993; Keable, 1997) but which have rarely been collected by other means. Prior to this study 4 described species were placed in the genus. *Plakolana accola* Bruce, 1993 and *P. nagada* Bruce, 1993 are known only from trap samples collected on the outer reef slope and within the barrier reef of Madang Lagoon, northern Papua New Guinea (Bruce, 1993). These species are found in depths of 300-450m and 16-22m, respectively (Bruce, 1993). *Plakolana mandorah* Keable, 1997 has been recorded from trap samples collected in Darwin Harbour and Torres Strait, northern Australia, in depths of 8-20m (Keable, 1997). *Plakolana binyana* (Bruce, 1991) has been documented previously only from a single specimen collected in a plankton tow at a depth of 221m over a bottom depth of 355-384m, off Crescent Head, NSW, on the central east coast of Australia. Additionally, Bruce (1986) reported a single immature specimen of *Plakolana* (as *Cirolana* sp.) that does not correspond to the morphology of the described species in the genus (Bruce, 1993). This

specimen was collected from off Coffs Harbour, NSW, on the central east coast of Australia in a sample of muddy sand taken from a depth of 75m.

This study documents 2 new species of *Plakolana*, and new distribution records of *P. binyana* and *P. mandorah*, apparent in collections made using baited traps in areas of NW, NE and SE Australia. To aid in the identification of these species a revised key for all species of *Plakolana* is also presented.

METHODS

The specimens reported here were obtained mostly using the trap design outlined by Keable (1995), additional specimens of *Plakolana binyana* were also located in existing Australian Museum collections.

The terminology and procedures used in description of the new species follow those summarised by Keable (1997). Particular attention should be paid to the orientation used for the anterior and posterior margins of the pereopods which follows that indicated by Bruce (1993).

Abbreviations: AM, Australian Museum, Sydney; BMNH, The Natural History Museum, London; QM, Queensland Museum, Brisbane; WAM, Western Museum, Perth; USNM, National Museum, Smithsonian Institution, Washington, DC; n, number of specimens; ×, times; CE, cephalon; A1, antennule; A2, antenna; CL, clypeal region; FL, frontal lamina; MD, mandible; MP, maxilliped; MX1, maxillule; MX2, maxilla; PE, penes; PN, pleon; P1-7, pereopods 1-7; U, uropod; PL1-5, pleopods 1-5; PT, pleotelson; Qld, Queensland; NSW, New South Wales; NT, Northern Territory; Tas., Tasmania; WA, Western Australia.

SYSTEMATICS

Class Crustacea
Order Isopoda
Family Cirolanidae

Plakolana Bruce, 1993

Plakolana Bruce, 1993: 9; Bruseca et al., 1995: 96.

TYPE SPECIES. *Plakolana accola* Bruce, 1993 by original designation.

REMARKS. A comprehensive diagnosis of *Plakolana* has been provided by Bruce (1993). In this diagnosis it is stated that the anterior margin of the basis of pereopods 4-7 is provided with long simple setae. In the generic remarks Bruce (1993) comments 'The flattened basis pereopods [sic] 4-7 with a row of simple setae along the anterior margin, is the only character that can be recognised as a potential unique apomorphy. Nonetheless the combination of characters delimits the genus'. It should be made clear that at least on pereopod 7 (and pereopods 4-7 in material examined here) the setae forming a row on the anterior (orientation depicted by Bruce (1993) fig. 2F,H) margin of the basis are plumose, not simple (see also descriptions of *P. binyana*, *P. accola* and *P. mandorah* in Bruce (1991, 1993) and Keable (1997)). A similar arrangement of plumose setae on the basis is known in species placed in a number of other cirolanid genera such as *Aatolana* Bruce, 1993, *Bathynomus* Milne Edwards, 1879, *Dolicholana* Bruce, 1986, *Natatolana* Bruce, 1981 (see Bruce, 1986; Keable, 1996, 1997, 1998). The basis of the pereopods has also been described as flattened in both *Dolicholana* and *Natatolana* (Bruce, 1986). Therefore, on phylogenetic grounds the pereopod character described by Bruce (1993) is relatively weak in defining *Plakolana*, probably representing a plesiomorphic state or homoplasy, rather than a 'unique apomorphy'. However, as Bruce (1993) notes the size and shape of the pleonite 3 is conspicuous, with a distinct posteroventral incision and lateral rows of setae, and is unique to the species placed in *Plakolana*. Therefore, this character can be recognised as an alternative putative synapomorphy which may be used to unambiguously define the genus.

KEY TO SPECIES OF PLAKOLANA

1. Uropod endopod, medial margin strongly sinuate distally *P. binyana*
Uropod endopod, medial margin straight or convex distally 2

2. Pereopod 7, merus anterior margin without robust setae . . 3
Pereopod 7, merus anterior margin with robust setae . . 4
3. Antenna, extending to pereonite 4 or 5 when flattened along body; uropod endopod, robust seta on medial side of apex approximately equal in length to robust seta proximal to it on medial margin *P. accola*
Antenna, extending to pereonite 2 or 3 when flattened along body; uropod endopod, robust seta on medial side of apex approximately twice as long as robust seta proximal to it on medial margin *P. nagada*
4. Maxilliped palp, lateral margin with plumose setae *P. mandorah*
Maxilliped palp, lateral margin without plumose setae . . 5
5. Uropod exopod, some robust setae on medial margin longer than the exopod width lateral to their insertion; uropod endopod, lateral and medial margins forming an angle of approximately 45° at apex *P. acuta* sp. nov.
Uropod exopod, all robust setae on medial margin shorter than the exopod width lateral to their insertion; uropod endopod lateral and medial margins forming an angle of approximately 60° at apex *P. obtusa* sp. nov.

Plakolana acuta sp. nov.

(Figs 1-3)

ETYMOLOGY. Derived from the latin word *acutus*, meaning sharpened, pointed or acute, referring to the appearance of the uropod endopod, as compared to some other species of *Plakolana*.

MATERIAL. HOLOTYPE: AMP54681, M, 10mm, off Flynn Reef, Qld, Australia, 16°41.32'S 146°18.26'E, baited trap, unknown substrate, 100m, J. Lowry, P. Freewater & W. Vader, 7-8 June 1993, SEAS QLD-937. PARATYPES: QMW24682, M, F; AMP47679, 5 F's; BMNH1999.462, F; USNM288442, F; all same data as holotype. OTHER MATERIAL: AMP54682, 40 specimens, east of Flynn Reef, Qld, 16°41.32'S 146°18.26'E, baited trap, unknown substrate, 100m, J. Lowry & K. Dempsey, 19-20 May, 1994, SEAS QLD-1055.

DIAGNOSIS. Dorsal interocular furrow distinct, not extending across the cephalon. Medial interocular furrow distinct, extending across the cephalon. Pleotelson robust setae present, 4-6 altogether. Antenna of medium length, 0.34× as long as body, when extended against the body reaching to posterior of pereonite 3. Maxilliped palp lateral margin plumose setae absent. Pereopod 7 merus anterior margin with robust setae. Uropod endopod robust setae long, 22% length of lateral margin; medial margin convex; lateral and medial margins forming an angle of approximately 45° at apex; robust seta on medial side of apex subequal to robust seta proximal to it on medial margin; lateral margin straight. Exopod medial margin with some robust setae longer than the exopod width lateral to their insertion.

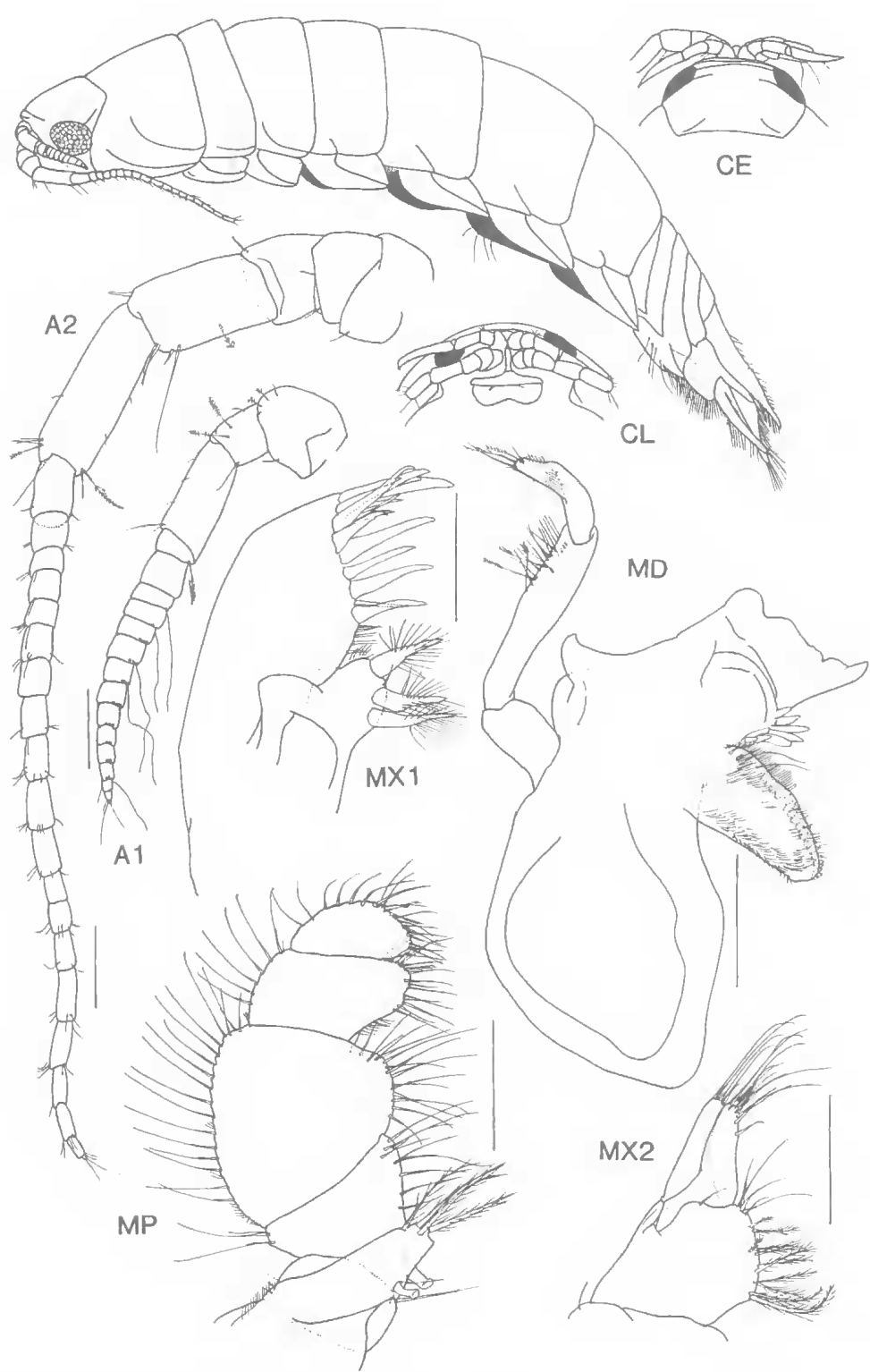


FIG. 1. *Plakolana acuta* sp. nov. Holotype. Scalebars = 0.2mm.

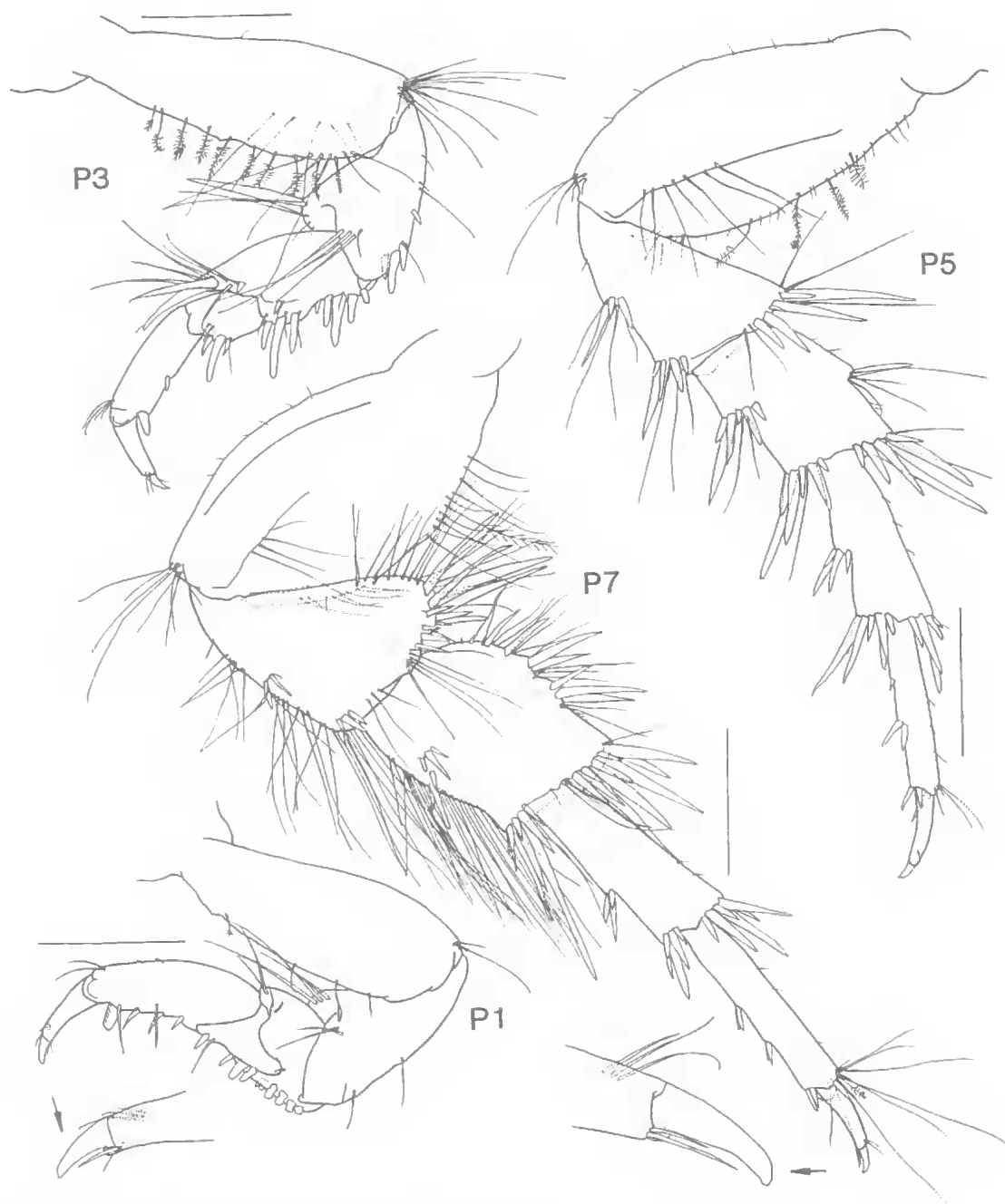


FIG. 2. *Plakolana acuta* sp. nov. Holotype. Scalebars = 0.5mm.

DESCRIPTION (Holotype).

Overall body form. 10mm long; narrow, length approximately $3.1 \times$ greatest width. Colour cream in alcohol. Chromatophores absent. Cuticular surfaces scale-like.

Cephalon. Ornamentation other than furrows or ridges absent, surface smooth; rostrum bent ventrally, anterior margin recessed in dorsal view (weakly recessed), rostrum not extending to frontal lamina, not dividing antennules; anterior

margin not overriding antennules; cephalic ridges absent, submarginal cephalic furrow well developed, runs entire length of anterior margin to eyes. Eyes present, well developed; visible in ventral view; moderate in size, round, length less than $2\times$ height; colour cream in alcohol; partially overlapped by pereonite 1; ommatidia arranged in rows, 8 ommatidia in horizontal diameter, 7 ommatidia in vertical diameter. Dorsal interocular furrow distinct, not extending across the cephalon. Medial interocular furrow distinct, extending across the cephalon. Frontal lamina linear, length approximately $3\times$ basal width; forming an angle of $\sim 45^\circ$ with ventral surface of cephalon; ventral surface flat, not produced; lateral margins medially constricted; lateral margins concave; ventral surface not sculpted; apex anteriorly projecting, visible in dorsal view, expanded, in 1 plane (not 'stepped'). anterior margin rounded. Clypeus triangular; width greater than length; not sculpted. Labrum flat; narrower than clypeus.

Pereonites. 1 longest, 2 shortest, 3-7 subequal; without transverse carina; tubercles absent.

Pleonites. 5 visible but pleonite 1 almost completely concealed along dorsal margin by pereonite 7; tubercles absent. Pleonite 1 posterolateral margins produced ventrally. Pleonite 2 dorsal posterolateral margin clearly projecting posterior to ventral posterolateral margin; ventral posterolateral margin acute, formed into short process. Pleonite 3 posterolateral margins extending posterior to posterodorsal margin of pleonite 5, acute with ventral incision and two rows of setae. Pleonite 4 posterolateral margins less produced than those of pleonite 3; ventral margin enclosed by pleonite 3; posterodorsal margin sinuate, convex proximal to meeting ventral margin at apex, apex broadly rounded dorsally, but meeting convex ventral margin at a point, extending posterior to posterodorsal margin of pleonite 5.

Pleotelson. Length $1\times$ basal width; dorsal surface with tubercles and carinae absent; conspicuous fine setae absent from dorsal surface; anterodorsal depression absent; anterodorsal uropodal sutures on anterolateral margins present (indistinct); anterolateral margins almost straight and angling posteriorly toward the midline; posterolateral margins convex; apex not produced, lateral margins meeting smoothly to a point; robust setae present, 6 altogether, 3 on each posterolateral margin; plumose setae present, restricted to posterolateral margins, moderately abundant, numerous proximal to robust setae.

Antennule. Short, just reaching pereonite 1. Peduncular bases touching (just); article 1 length subequal to width, greater than article 2; article 2 width subequal to length, anterodistal angle with 2 pappose setae, posterodistal angle with 1 slender seta; article 3 shorter than combined lengths of articles 1-2, longer than article 1, length greater than width. Flagellum longer than peduncle; not formed into callynophore; articles not compressed (lengths of most greater than half width); 13-articulate; article 1 short, length not much greater than width; aesthetascs present, iridescent (weakly).

Antenna. Medium length, $0.34\times$ as long as body, when extended against the body reaching to posterior of pereonite 3. Peduncular article 2 shorter than article 3; article 4 slightly longer than article 3, anterodistal angle with 2 slender setae, posterolateral margin with 1 penicillate seta, posterodistal angle with 4 slender setae; article 5 longer than article 4 and all other articles, anterodistal angle with 4 slender and 1 penicillate setae, posterodistal angle with 1 slender and 1 penicillate setae. Flagellum 20-articulate; setal brush absent.

Mandible. Molar well developed; medial surface covered with short fine slender setae, cluster of long slender setae proximally present, long slender setae submarginal to anterior margin absent; robust setae present on anterior margin, close set. Setal row well developed, with 7 robust setae; intermediate slender setae absent; medial surface without setae. Incisor broad (wider than narrowest width of mandible), tridentate, posterior tooth larger than others. Palp article 1 longer than article 3; article 2 of medium length, approximately $2\times$ the length of article 3, with numerous slender and serrate setae.

Maxillule. Medial lobe with 3 large robust pappose setae, subequal in length; lateral margin with protuberance well developed. Lateral lobe with 13 robust setae on distal surface.

Maxilla. Lateral lobe subequal and distinct from middle lobe; slender, with 5 slender setae. Medial lobe with 5 slender and 11 plumose setae, with 2 medial plumose setae longest and bent. Middle lobe with 10 slender setae.

Maxilliped. Palp moderately setose; medial margin slender setae along most of the length of articles 2-5; lateral margin slender setae along most of the length of articles 2-5, plumose setae absent; article 1 without transverse setal row; article 3 length subequal to breadth, distal margin width greater than proximal margin of article 4;

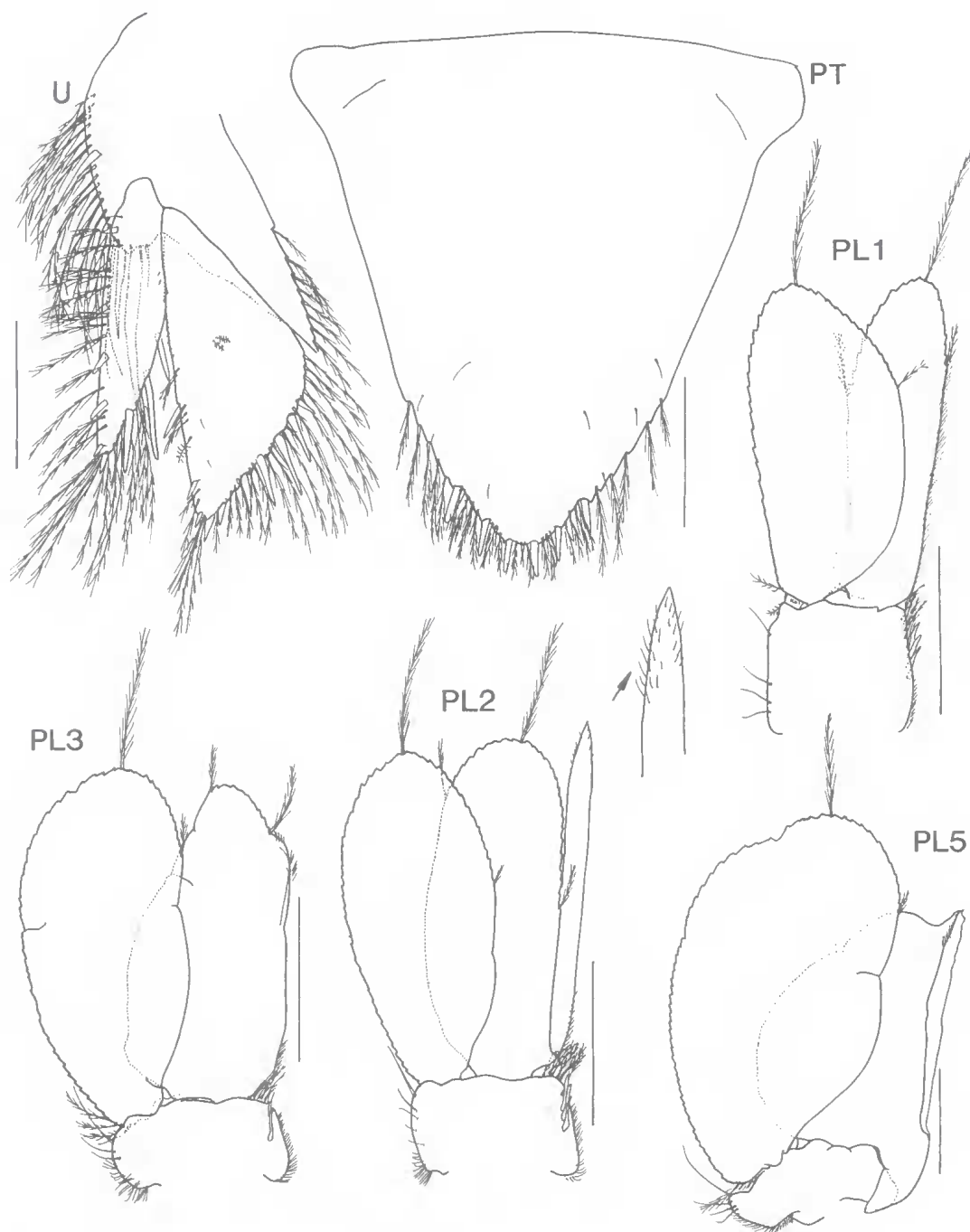


FIG. 3. *Plakolana acuta* sp. nov. Holotype. Scalebars = 0.5mm.

article 4 length less than breadth, distal margin width greater than proximal margin of article 5; article 5 rounded, length less than breadth, medial margin serrate setae present. Endite forming a

distinct lobe, extending to distomedial margin of palp article 2; right endite with 2 coupling hooks, left endite with 2 coupling hooks, and 4 plumose setae.

Coxal plates. Shallow, not as high as long; furrows strongly developed, on all coxae.

Pereopods. Pereopods 1-7 dactylus secondary unguis slender and lying against primary unguis. Pereopods 1-3 merus posterior margin robust setae strongly molariform on pereopod 1 only. Pereopod 1 posterior margin setose fringe absent. Ischium anterodistal angle without robust setae; posterior margin without robust setae. Merus anterodistal angle without robust setae; posterior margin with 9 robust setae. Carpus posterior margin with 1 robust seta. Propodus robust; with 3 robust setae on palm, with 1 robust seta opposing dactylus. Dactylus long, $0.5-1 \times$ propodus length. Pereopod 2 ischium anterodistal angle with 1 robust seta; posterior margin with 2 robust setae. Merus anterodistal angle with 2 robust setae; posterior margin with 9 robust setae. Carpus with 3 robust setae. Propodus with 1 robust seta on palm, 1 robust seta opposing dactylus. Pereopod 3 ischium anterodistal angle with 1 robust seta; posterior margin with 4 robust setae. Merus anterodistal angle with 2 robust setae (and 1 set further back); posterior margin with 8 robust setae (and 1 set further back). Carpus with 3 robust setae. Propodus with 1 robust seta on palm, 1 robust seta opposing dactylus. Pereopods 4-7 basis anterior margin plumose setae present. Pereopod 7 basis of medium breadth, width $0.49 \times$ length; anterior margin setae plumose, present along entire length, closely and regularly spaced along entire length; medial carina setae slender, posterior margin setae absent; posterodistal angle setae slender. Ischium anterior margin without robust setae, non-robust setae slender; anterodistal angle with 12 robust setae (including 3 uniseriate), slender setae present; posterior margin with 2 robust setae, slender setae present; posterodistal angle with 4 robust setae, non-robust setae slender. Merus anterior margin with 6 robust setae, slender setae present; anterodistal angle with 9 robust setae, slender setae present; posterior margin with 7 robust setae, slender setae present; posterodistal angle with 8 robust setae, non-robust setae slender. Carpus anterior margin without robust setae, non-robust setae absent; anterodistal angle with 7 robust setae, non-robust setae absent; posterior margin with 3 robust setae, non-robust setae absent; posterodistal angle with 5 robust setae, non-robust setae slender (1 present). Propodus anterior margin without robust setae, non-robust setae absent; anterodistal angle with 1 robust seta, slender

setae present; posterior margin with 4 robust setae, non-robust setae absent; posterodistal angle with 2 robust setae, slender setae absent.

Penes. Absent, vasa deferentia opening flush to surface of sternite 7.

Pleopods. Exopod suture incomplete on pleopods 3-5; endopod plumose setae present across distal margins of pleopods 1-4 and absent on pleopod 5. Pleopods 1-2 exopod broader than endopod; exopod and endopod elongate (length more than $2 \times$ width). Pleopod 1 exopod medial margin oblique, proximolateral robust seta absent; endopod length subequal to exopod, lateral margin concave. Pleopod 2 *appendix masculina* arising sub-basally; extending beyond tip of endopod, $1.05 \times$ length of endopod from insertion point; margins straight, approximately parallel along entire length; slender; apex not at angle to margins, acute. Pleopods 3-4 endopod distinctly shorter than exopod. Pleopod 5 peduncle lateral margin with broad, lamellar lobe; exopod distal margin rounded; endopod distal margin narrowed to obscure point, proximomedial lobe strongly produced.

Uropods. Extending beyond pleotelson. Peduncle ventrolateral angle with 1 robust seta, and 3 plumose setae; lateral margin robust seta present; distolateral angle rounded. Endopod medial margin convex, with 6 robust setae, robust setae long, 22% length of lateral margin, plumose setae present, along entire length, long; lateral and medial margins forming an angle of approximately 45° at apex; apex entire, without notch, with 2 robust setae, robust seta on medial side subequal to robust seta proximal to it on medial margin, setal cluster present, formed by plumose setae; lateral margin straight, with 2 robust setae, plumose setae present, on distal half (sparse), short. Exopod slightly shorter than endopod, $0.8 \times$ the length of the endopod; medial margin convex, with 3 robust setae, some robust setae longer than the exopod width lateral to their insertion, plumose setae present, not along entire length (on distal half), long; lateral and medial margins forming an angle of approximately 35° at apex; apex entire without notch and acute, with 2 robust setae, setal cluster present, formed by plumose setae; lateral margin convex, robust and plumose setae continuous along margin, with 5 robust setae, robust setae small, plumose setae present, along entire length, long.

SEXUAL DIMORPHISM. Females differ from males only in the primary sexual characters and do not have the pleopod 2 appendix masculina.

VARIATION. Pleotelson and uropod robust setal counts from margins (N = 9, all paratypes): Pleotelson 2:2 (11%), 2:3 (33%), 3:3 (56%). Endopod (medial) 5 (44%), 6 (56%); (lateral) 2 (100%). Exopod (medial) 4 (100%); (lateral) 4 (11%), 5 (89%).

SIZE RANGE. Adults 10–15mm.

REMARKS. See discussion section.

DISTRIBUTION. Australia, off Cairns, Qld. In depths of 100m.

***Plakolana obtusa* sp. nov.**
(Figs 4–6)

ETYMOLOGY. Derived from the latin word *obtusus*, meaning blunt, and refers to the appearance of the uropod endopod in this species when compared to most of the other species of *Plakolana*.

MATERIAL. HOLOTYPE: AM54683, M, 9.5mm, east of Fitzroy Reef, Great Barrier Reef, Qld, Australia, 23°32.53'S 152°16.44'E, baited trap, unknown substrate, 100m, J. Lowry & K. Dempsey, 3–4 June 1994, SEAS QLD-1096. PARATYPES: QMW24683, M, F; AMP-54684, 8M's, 23F's; BMNH1999.463–464, M, F; USNM-288443, M, F, all same data as holotype. OTHER MATERIAL: AMP54685, 9 specimens, east of Flynn Reef, Qld, 16°41.32'S 146°18.26'E, baited trap, unknown substrate, 100m, J. Lowry & K. Dempsey, 19–20 May 1994, SEAS QLD-1055; AMP48439, 39 specimens, NE of Coffs Harbour, NSW, 30°15.94'S 153°21.9'E, baited trap, unknown substrate, 100m, J. Lowry & K. Dempsey, 9–10 Sept. 1994, SEAS NSW-1006.

DIAGNOSIS. Dorsal interocular furrow distinct, not extending across the cephalon. Medial interocular furrow distinct, extending across the cephalon. Pleotelson robust setae present on margins, 6 altogether. Antenna 0.35× as long as body, when extended against the body reaching to posterior of pereonite 3. Maxilliped palp lateral margin plumose setae absent. Pereopod 7 merus anterior margin with robust setae. Uropod endopod robust setae short, 11% length of lateral margin; medial margin convex; lateral and medial margins forming an angle of approximately 60° at apex; robust seta on medial side of apex shorter than robust seta proximal to it on medial margin; lateral margin slightly convex. Exopod medial margin robust setae shorter than the exopod width lateral to their insertion.

DESCRIPTION (Holotype). Due to the similarity of this species to *P. acuta* only variations between the 2 species are included here.

Overall body form. 9.5mm long; length approximately 2.79× greatest width.

Cephalon. Eye colour pale orange in alcohol; 9 ommatidia in horizontal diameter, 8 ommatidia in vertical diameter. Frontal lamina lateral margins straight, parallel.

Pereonites. 1 and 5–6 subequal in length and longest, 4 and 7 subequal and longer than 2–3 which are subequal.

Pleotelson. Length 1.05× basal width; antero-lateral margins convex; robust setae present, 6 altogether.

Antennule. Peduncular article 1 length subequal to article 2; article 2 longer than wide. Flagellum 12-articulate; article 1 elongate, length much greater than width.

Antenna. 0.35× as long as body. Peduncular article 4 much longer than article 3, posterolateral margin with 1 penicillate seta, posterodistal angle with 4 slender setae, distal margin with 1 penicillate and 1 slender setae, anterodistal angle with 3 slender setae; article 5 anterodistal angle with 2 penicillate and 2 slender setae, posterodistal angle with 2 penicillate and 2 slender setae. Flagellum 25-articulate.

Mandible. Setal row with 9 robust setae. Palp article 1 subequal to article 3.

Maxillule. Medial lobe with 3 large and 1 smaller robust pappose setae, large medial seta subequal in length to large lateral setae; lateral margin with protuberance absent.

Maxilla. Medial lobe with 6 slender and 8 plumose setae. Middle lobe with 11 slender setae.

Maxilliped. endite not reaching distomedial margin of palp article 2; left endite with 7 plumose setae.

Pereopods. Pereopod 1 merus posterior margin with 8 robust setae. Carpus posterior margin with 2 robust setae. Pereopod 2 ischium posterior margin with 3 robust setae. Merus posterior margin with 7 robust setae. Pereopod 3 ischium posterior margin with 3 robust setae. Merus posterior margin with 9 robust setae. Pereopod 7 basis broad, width 0.56× length. Ischium anterodistal angle with 9 robust setae; posterior margin without robust setae; posterodistal angle with 2 robust setae. Merus anterodistal angle with 8 robust setae; posterior margin with 3 robust setae; non-robust setae absent. Carpus anterior margin non-robust setae slender; posterior margin with 4 robust setae, non-robust setae slender; posterodistal angle with 7 robust setae. Propodus anterior margin with non-robust setae slender. Pleopod 2 appendix masculina arising basally;

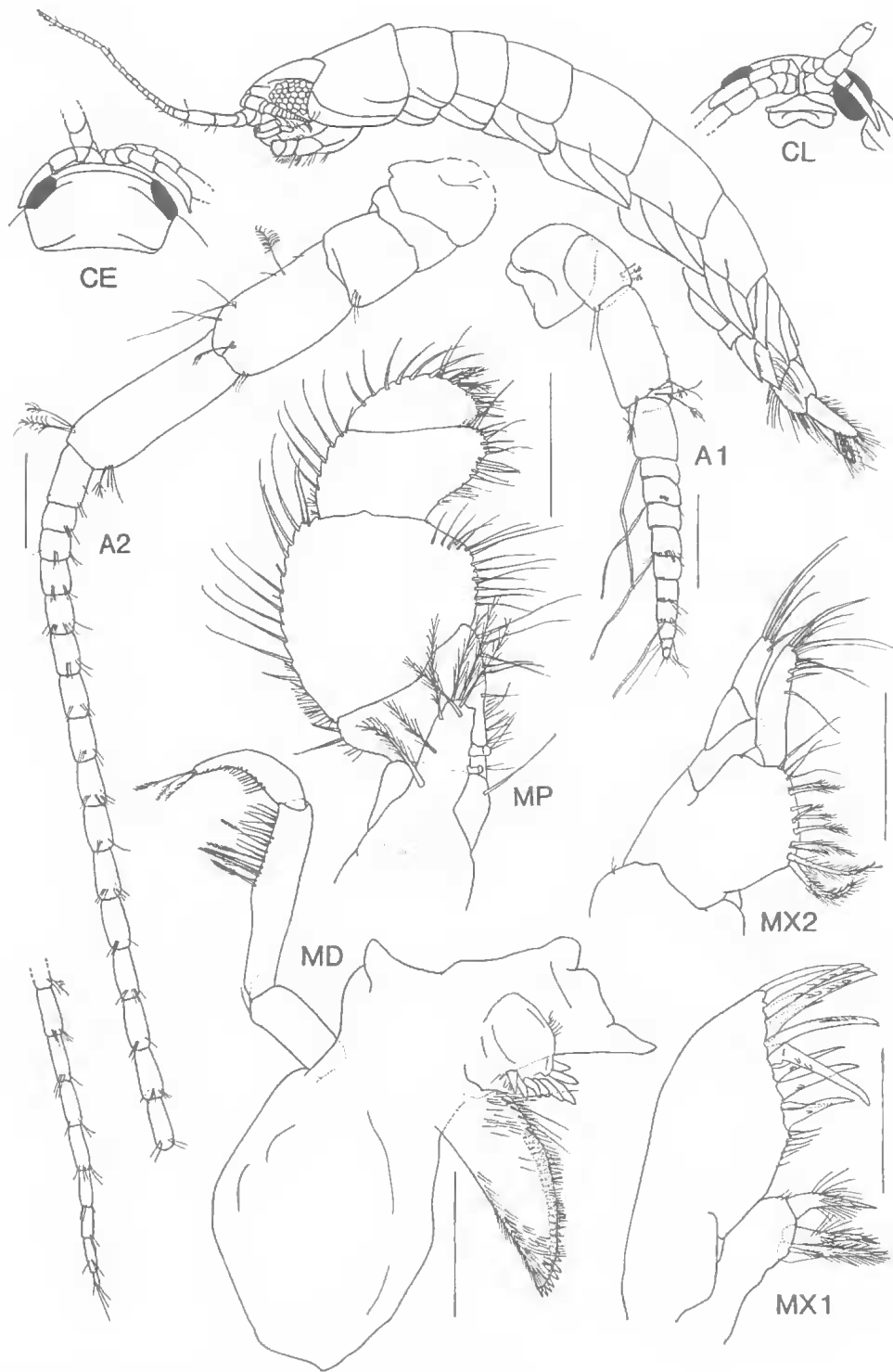


FIG. 4. *Plakolana obtusa* sp. nov. Holotype. Scalebars = 0.5mm.

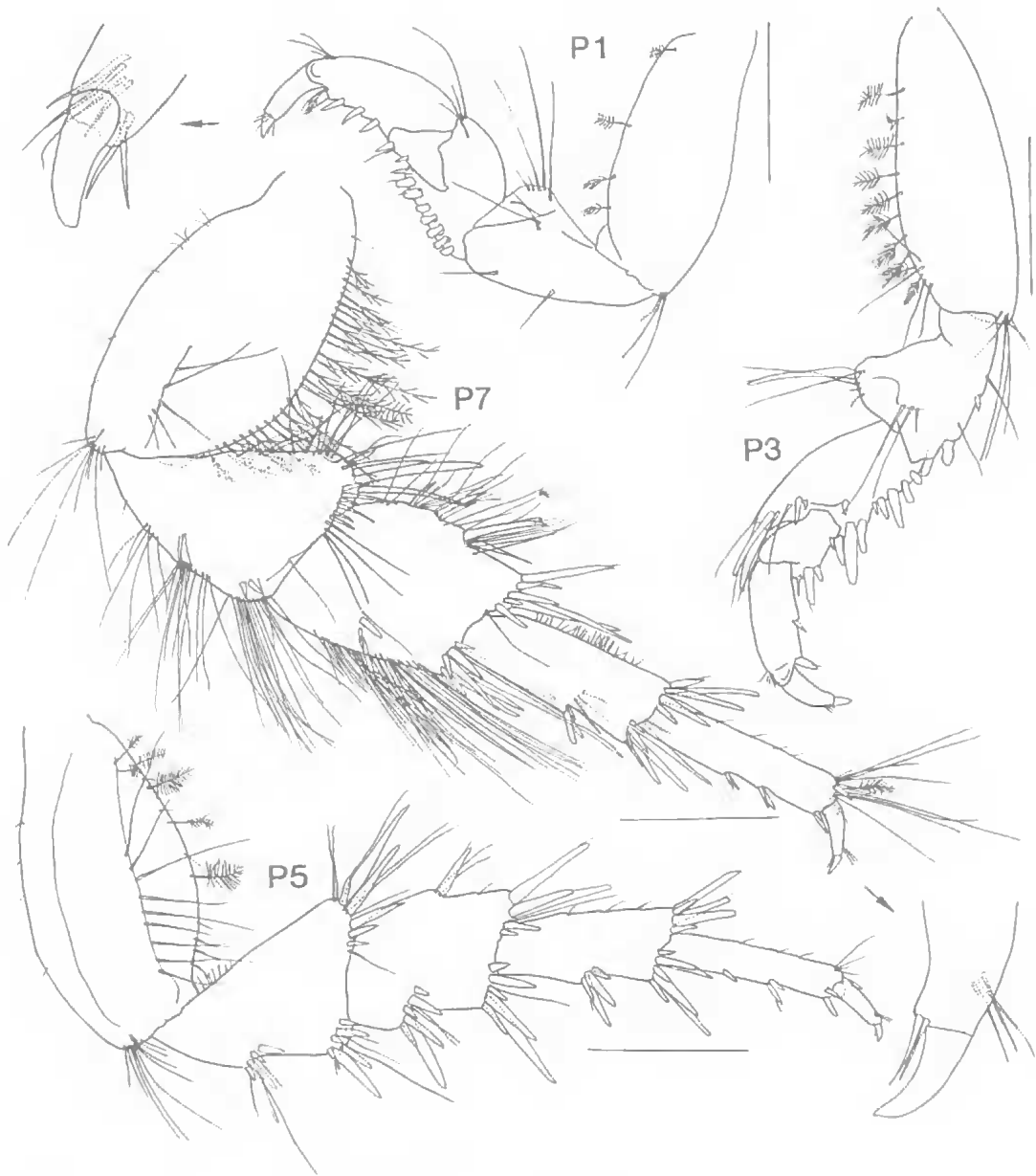


FIG. 5. *Plakolana obtusa* sp. nov. Holotype. Scalebars = 0.5mm.

extending subequal with tip of endopod, $1 \times$ length of endopod from insertion point.

Uropods. peduncle ventrolateral angle with 2 robust setae. Endopod robust setae short, 11% length of lateral margin; lateral and medial margins forming an angle of approximately 60° at apex; apex seta on medial side shorter than robust seta proximal to it on medial margin; lateral margin slightly convex. Exopod short,

$0.79 \times$ the length of the endopod; with 4 robust setae, robust setae shorter than the exopod width lateral to their insertion; lateral and medial margins forming an angle of approximately 50° at apex; lateral margin robust setae large.

SEXUAL DIMORPHISM. Females differ from males only in the primary sexual characters and do not have the pleopod 2 appendix masculina.

VARIATION. Pleotelson and uropod robust setal counts from margins (N=20, subsample of 10 male and 10 female paratypes): Pleotelson 3:3 (100%). Endopod (medial) 5 (25%), 6 (60%), 7 (15%); (lateral) 2 (95%), 3 (5%). Exopod (medial) 4 (100%); lateral 5 (65%), 6 (35%).

SIZE RANGE. Adults 7-12mm.

REMARKS. See discussion section.

DISTRIBUTION. Australia, off Cairns and Gladstone, Qld, and Coffs Harbour, NSW. In depths of 100m.

Plakolana binyana (Bruce)

Cirolana binyana Bruce, 1991: 265, figs 4-6; Springthorpe & Lowry, 1994: 40.

Plakolana binyana: Bruce, 1993: 11.

MATERIAL. AMP54686, 2M's, F, east of Long Reef, NSW, 33°43-44'S 151°46'E, prawn trawl fitted with epibenthic sledges, 174m, FRV Kapala, 19 Dec. 1985, K85-21-08; AMP44239, 5M's, F, off Wollongong, NSW, 34°31.48'S 151°13.22'E, baited trap, *Globigerina* ooze, 200m, J. Lowry & K. Dempsey, 28 Mar. 1994; AM P54687, M, 400m off small shingle beach, north end of Tower Bay, D'Entrecasteaux Channel, Tas., 43°23.6'S 147°2.4'E, baited trap, unknown substrate, 40m, J. Lowry & S. Keable, 20-21 April 1991, TAS-222.

REMARKS. The material examined matches the original description of *Plakolana binyana* in all of the characters which are currently considered to be diagnostic of that species. Additional material, collected off Wollongong in depths of 200m, is also registered in Australian Museum collections (personal observation).

DISTRIBUTION. Australia, central NSW to eastern Tas. In depths of 40-221m.

Plakolana mandorah Keable

Plakolana mandorah Keable, 1997: 270, figs 8-10.

MATERIAL. AMP54688, 7F's, manca; WAMC24364, M, F; both lots from Ngalaguru (High Cliffy) I., off Kimberley Plateau, WA, 15°54.77'S 124°20.68'E, baited trap, unknown substrate, unknown depth, F. Wells, 22-23 Nov. 1994, Stn. 16.

DISTRIBUTION. Australia, Torres Strait, Qld.; Darwin, NT; off Kimberley Plateau, WA. In depths of 8-20m.

DISCUSSION

Plakolana acuta and *P. obtusa* differ most noticeably from *P. accola* and *P. nagada* in

having pereopod 7 with robust setae on the anterior margin of the merus. *Plakolana obtusa* also differs from these 2 species in having: the distal section of the uropod endopod medial margin noticeably convex rather than approximately straight; relatively short robust setae on the margins of the uropod endopod (approximately 11% of the length of the lateral margin of the endopod as opposed to 18% and 32-35%, respectively); the uropod endopod lateral margin convex, instead of weakly sinuate or straight; and the uropod endopod margins forming an angle of approximately 60° at the apex, instead of approximately 40° or less. *Plakolana binyana* is similar to *P. acuta* and *P. obtusa* but lacks robust setae on the anterior margin of the merus of pereopod 7, and has the medial margin of the uropod endopod sinuate, making the apex appear more distinctly narrowed. *Plakolana binyana* also has only 4 robust setae on the pleotelson whereas *P. obtusa* is only known to have 6. *Plakolana mandorah* differs most clearly from *P. acuta* and *P. obtusa* in having plumose setae on the lateral margins of the maxillipedal palp. *Plakolana mandorah* also has the margins of the uropod endopod meeting at a more acute angle (approximately 50°) than in *P. obtusa* (approximately 60°). *Plakolana acuta* and *P. obtusa* occur sympatrically and are extremely similar. *Plakolana acuta* differs from *P. obtusa* in having the margins of the uropod endopod meeting at a more acute angle (approximately 45° rather than approximately 60°) and robust setae on the medial margin of the uropod exopod which are longer than the uropod exopod width lateral to their insertion. The manca specimen Bruce (1986, 1993) recorded from Coffs Harbour, NSW, has not been assigned to a described species of *Plakolana* and differs from *P. acuta* and *P. obtusa* in having a complete dorsal interocular furrow, the anterior margin of the merus of pereopod 6 or 7 without robust setae (note that Bruce (1986) records the specimen as a manca but illustrates a pereopod 7 although this appendage is not developed in mancas) and the uropod endopod margins meet at a more obtuse angle. This suggests a further undescribed species of *Plakolana* occurs within the area where *P. obtusa* is found.

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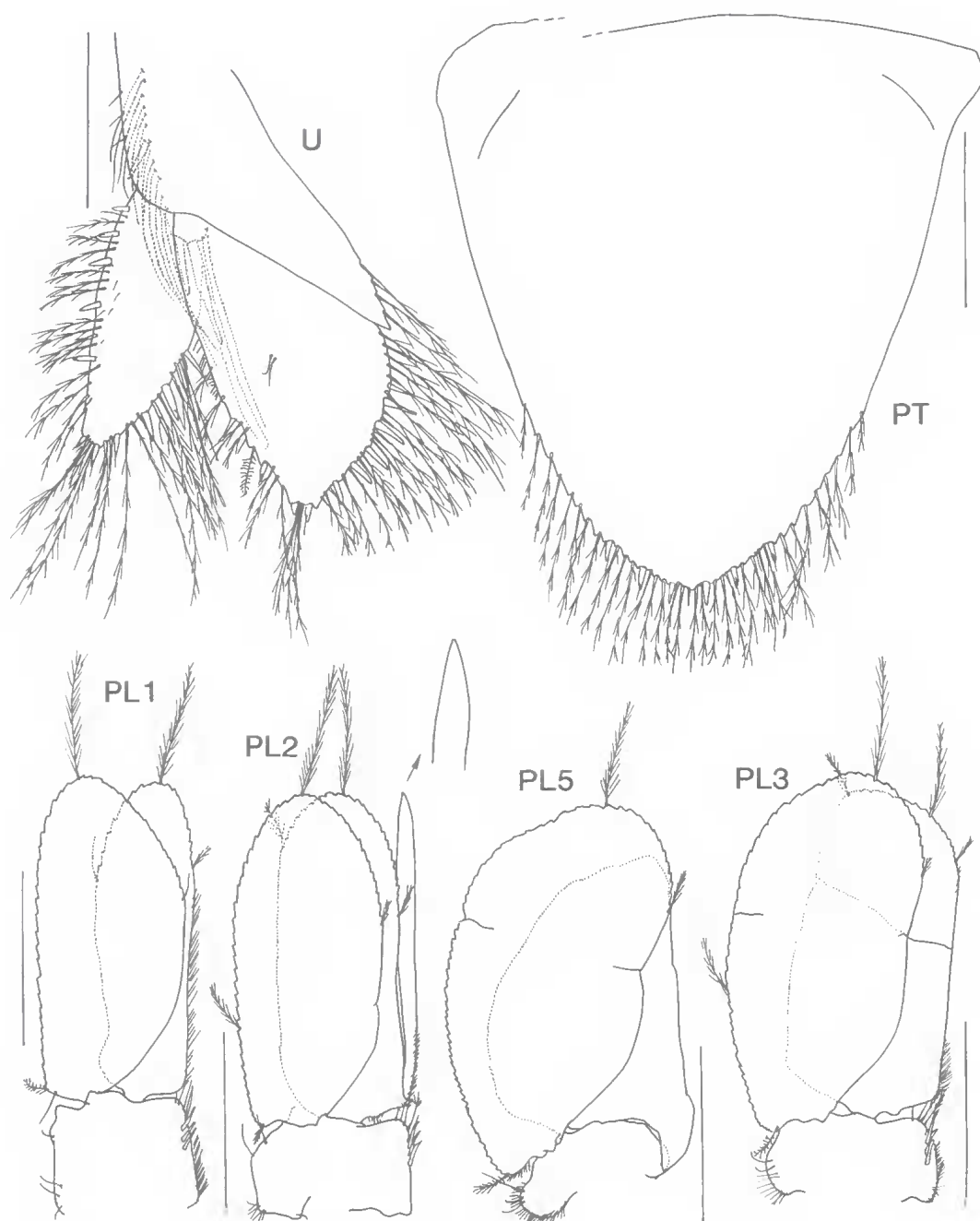


FIG. 6. *Plakolana obtusa* sp. nov. Holotype. Scalebars = 0.5mm.

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